

Overview of Lower Colorado River Multi-Species Conservation Program

W.E. Werner

Arizona Department of Water Resources

April 15, 2005

What are the goals of the program?

The overall goal of the LCR MSCP is to:

- **conserve habitat** and **work toward recovery** of threatened and endangered species, as well as reduce the likelihood of additional species being listed;
- accommodate present **water diversions and power production** and optimize opportunities for future water and power development, to the extent consistent with the law; and
- provide the basis for **incidental take authorizations**.

Listing of "Big River" Fish

- Colorado pikeminnow - 1967
- Humpback chub - 1967
- Bonytail - 1980
- Razorback sucker - 1991

Listing rationale:

- Habitat fragmentation
- Alteration of pre-development hydrograph
- Introduction of and interaction with non-native aquatic species

The Fish




Humpback Chub
Gila cypha


Razorback Sucker
Xyrauchen texanus



The Fish

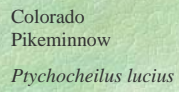


Colorado
Pikeminnow
Prychocheilus lucius

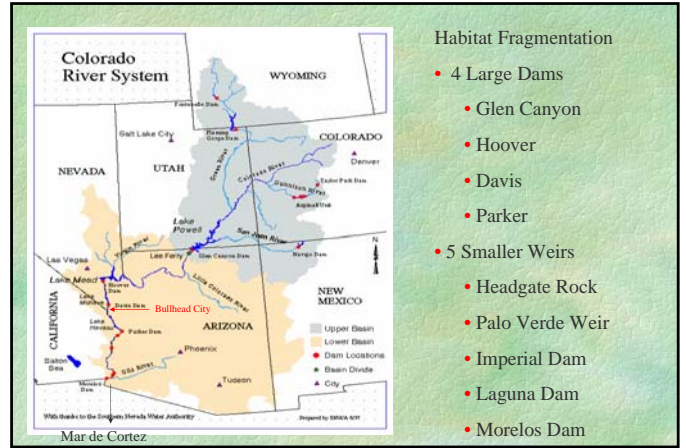


Bonytail
Gila elegans

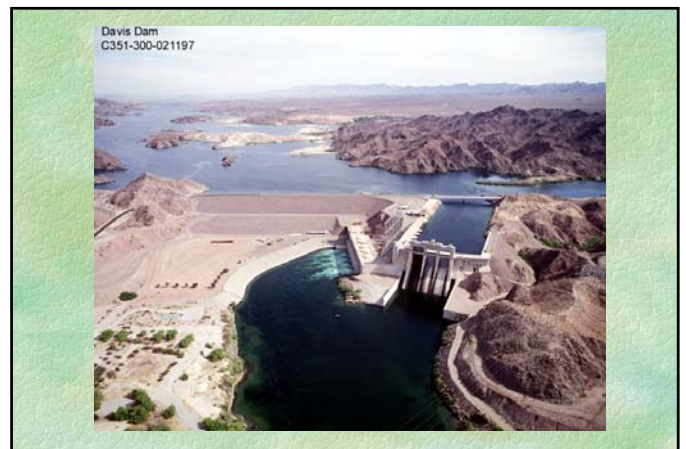
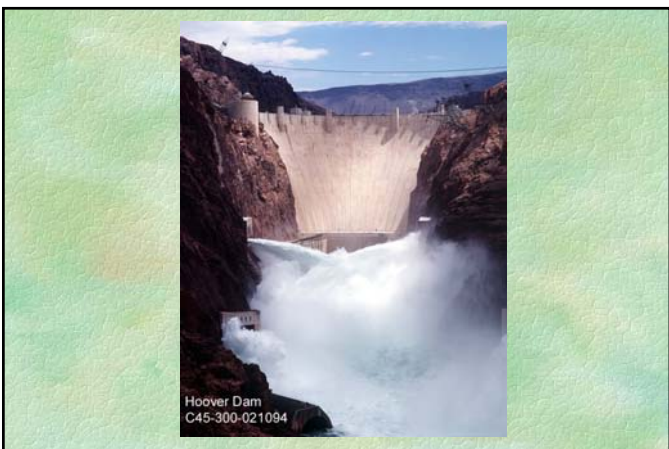
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- Habitat Fragmentation
 - 4 Large Dams
 - Glen Canyon
 - Hoover
 - Davis
 - Parker
 - 5 Smaller Weirs
 - Headgate Rock
 - Palo Verde Weir
 - Imperial Dam
 - Laguna Dam
 - Morelos Dam



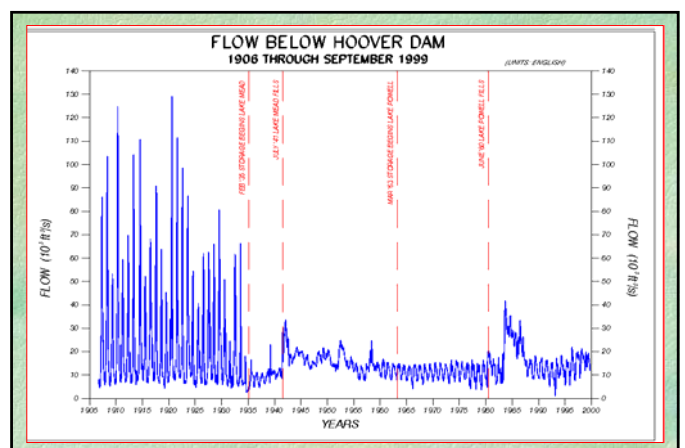


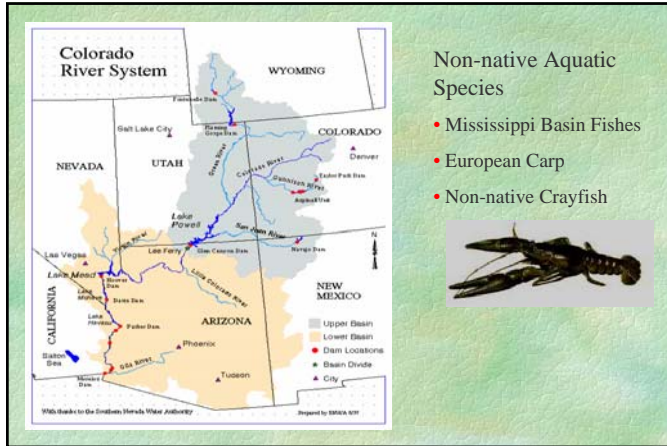
Palo Verde Diversion Dam
C385-300-020000





Construction of Dams Has Resulted in Alteration of the Hydrograph



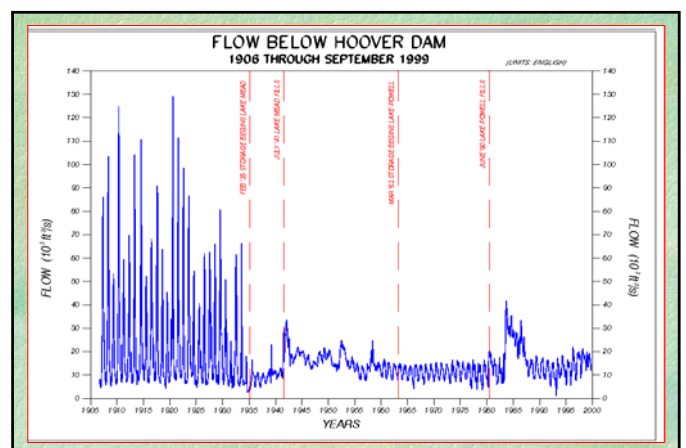
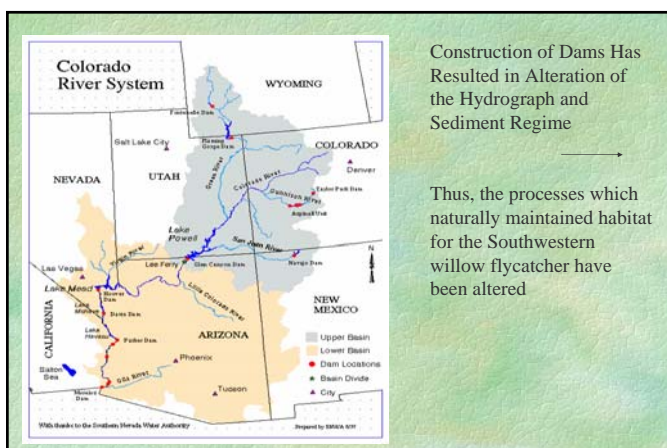


Southwestern willow flycatcher



“Within this region, the species is restricted to dense riparian associations of willow, cottonwood, buttonbush, and other deciduous shrubs and trees. This habitat was historically rare and sparsely distributed and is currently more rare owing to extensive destruction and modification. The southwestern willow flycatcher is **endangered by extensive loss of habitat, brood parasitism, and lack of adequate protective regulations.**”

(60FR10684)



Major Conservation Themes - Fish

Maintain existing genetic diversity

- Maintain Lakes Mohave and Havasu as genetic refugia

Raise native fish to a size less vulnerable to predation prior to release.

- Capture wild larvae and raise in hatchery then grow out ponds
- Hatchery production

Provide predator free environments (refugia) for native fish.

- Maintain refugia as isolated destinations
- Periodic reconnection of isolated habitats

Major Themes Cont'd.

Manage relic sloughs and channel features

- Provide for seasonal flooding of "bottomland areas"
- Provide for periodic hydrologic reconnection

Manage impacts of interactions with non-native aquatic species

- Investigate opportunities for focussed control measures
- Research development of specific piscicides

Adaptive Management central to the entire program

- Conservation actions designed as experiments

Conservation Strategies - Riparian Birds



I. Review listing rationale:

- extensive loss of habitat
- brood parasitism

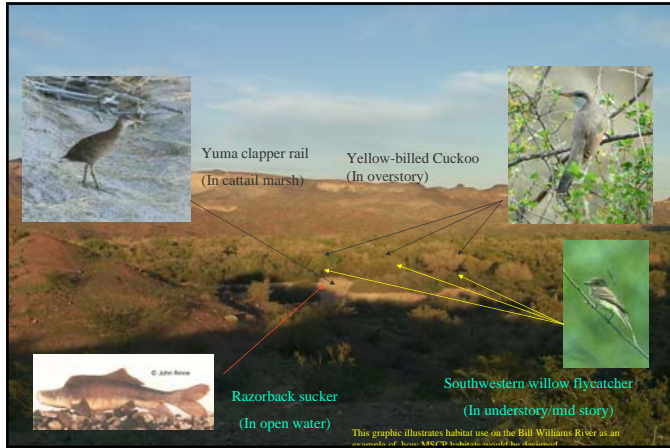
II. Understand the mechanism of impact from listed factors

III. Mitigate those effects:

- Variations in temporal and spacial scales
- Consider needs of other species which may benefit by similar actions

Basic Strategy – Core Elements

- Habitat Based Approach for Most Species
- Population Augmentation for Listed Fish
- Program to maintain habitat baseline values



Basic Strategy

- **Habitat Based Approach for Most Species**
- Population Augmentation for Listed Fish
- Program to maintain habitat baseline values

Restoration Proposal

Land Cover Type	Acres Affected	Acres To Be Restored
Cottonwood-Willow	2,141	5,940
Mesquite	590	1,320
Marsh	256	512
Backwaters	357	360
TOTALS	3,344	8,132



Basic Strategy

- Habitat Based Approach for Most Species
- **Population Augmentation for Listed Fish**
- Program to maintain habitat baseline values

Native Fish Proposal

SPECIES	ACTIVITY
Razorback Sucker	660,000 fish Over 50-year period
Bonytail	620,000 fish Over 50-year period
Humpback Chub	\$10,000/year to GCDAMP For 50 years
Flannelmouth Sucker	\$80,000/5 years + 85 acres of backwaters

Basic Strategy

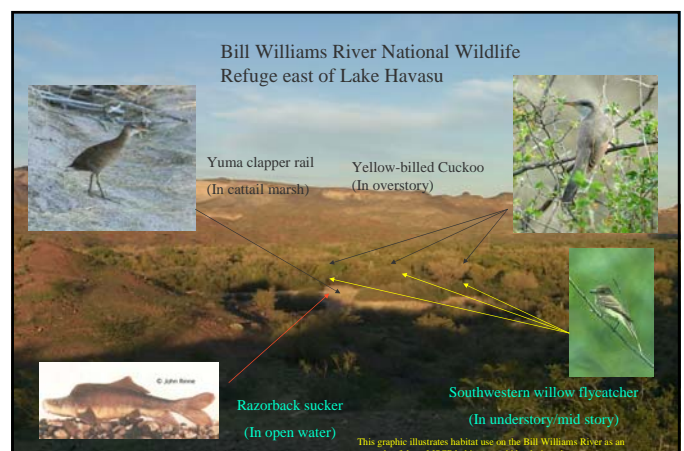
- Habitat Based Approach for Most Species
- Population Augmentation for Listed Fish
- Program to maintain habitat baseline values

Maintenance of Existing Habitat Value

- \$25,000,000 Maintenance Fund
 - Established up-front in process, used to fund actions to maintain existing habitat value within the planning area
 - Available to land managers with consent of Reclamation, USFWS, and State participants
 - Purpose: *Maintenance of Baseline*

Water Quality

- River different from prior to development
 - Sediment regime altered
- Salinity an issue in establishment of native trees
- Selenium concentration



MSCP Species - Birds

Riparian Habitat Associated

- [Southwestern willow flycatcher](#) **Endangered**
- [Western yellow-billed cuckoo](#) *
- Elf owl
- Gilded flicker
- Gila woodpecker
- Vermilion flycatcher
- Arizona Bell's vireo
- Sonoran yellow warbler
- Summer tanager

Marsh Birds

- [Yuma clapper rail](#) **Endangered**
- Western least bittern
- [California black rail](#) *

MSCP Species - Mammals

Riparian Habitat Associated

- California leaf-nosed bat
- Pale Townsend's big-eared bat
- Western (desert) red bat
- Western yellow bat
- Yuma hispid cotton rat
- Desert pocket mouse

Marsh Habitat Associated

- Colorado River cotton rat

MSCP Species - Fish

- Bonytail **Endangered**
- Humpback chub **Endangered**
- Flannelmouth sucker
- Razorback sucker **Endangered**

MSCP Species - Plants

- Sticky buckwheat *
- Threecorner milkvetch *

* State Protected in Nevada

MSCP Species - Reptiles & Amphibians

- Desert tortoise (Mojave population - **Threatened**)
- Flat-tailed horned lizard
- Relict leopard frog
- Lowland leopard frog
- Colorado River toad

MSCP Species - Insects

- MacNeill's sootywing skipper